

# PATENT ABSTRACTS OF JAPAN

(11)Publication number : 09-030705

(43)Date of publication of application : 04.02.1997

(51)Int.Cl.

B65H 29/58  
B65H 7/02  
B65H 29/60  
G07D 9/00

BEST AVAILABLE COPY

(21)Application number : 07-180320

(71)Applicant : OKI ELECTRIC IND CO LTD

(22)Date of filing : 17.07.1995

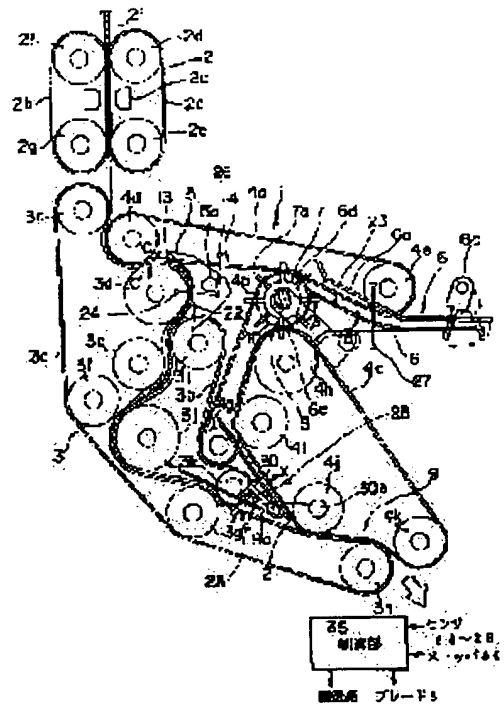
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## (54) PAPER SHEET OBVERSE/REVERSE SIDE REVERSING DEVICE

### (57)Abstract:

PROBLEM TO BE SOLVED: To provide a paper sheet obverse/reverse side reversing device which can be continuously used even if a conveying jam occurs.

SOLUTION: A shutter 30 for blocking the exit of a non-reverse conveyance passage 3 or the exit of a reverse conveyance passage 4 is provided. When a jam is detected in the non-reverse conveyance passage 3 by sensors 24 to 28, a control unit 35 blocks the exit of the non-reverse conveyance passage 3 by controlling the shutter 30 and sets the destination of the successive paper sheets to the reverse conveyance passage 4 by controlling a blade 5. When a jam is detected in the reverse conveyance passage 4, the control unit 35 blocks the exit of the reverse conveyance passage 4 by controlling the shutter 30 and sets the destination of the successive paper sheets to the non-reverse conveyance passage 3 by controlling the blade 5.



## LEGAL STATUS

[Date of request for examination]

21.02.2002

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or

application converted registration]

[Date of final disposal for application]

[Patent number] 3455968

[Date of registration] 01.08.2003

[Number of appeal against examiner's  
decision of rejection]

[Date of requesting appeal against examiner's  
decision of rejection]

[Date of extinction of right]

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**CLAIMS**

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[Claim(s)]

[Claim 1] A noninverting conveyance way conveyed as it is, without carrying out front reverse side reversal of the paper leaf distinguished from public in the differentiation section which is characterized by providing the following, and which distinguishes the front reverse side of paper leaf, A reversal conveyance way which public is reversed and conveys paper leaf distinguished from reverse side sense, A paper leaf table reverse side turnover device equipped with a distribution means to distribute paper leaf to said noninverting conveyance way or a reversal conveyance way, and a unification conveyance way which paper leaf which passed through said noninverting conveyance way and a reversal conveyance way is made to join, and conveys it based on a distinction result in the differentiation section A detection means to detect a jam of paper leaf in said noninverting conveyance way A detection means to detect a jam of paper leaf in said reversal conveyance way A control means which controls said distribution means not to send paper leaf into a conveyance way of a direction where a jam was detected with said detection means A conveyance means for stopping which stops conveyance of paper leaf in a conveyance way of a direction where it was controlled by said control means and a jam was detected with said detection means

[Claim 2] It is the paper leaf table reverse side turnover device characterized by having a shutter which takes up an outlet of a noninverting conveyance way, or an outlet of a reversal conveyance way as said conveyance means for stopping in a paper leaf table reverse side turnover device according to claim 1, and for said control means controlling this shutter, and taking up an outlet of a conveyance way of a direction where a jam was detected with said detection means.

[Claim 3] It is the paper leaf table reverse side turnover device which is independently equipped with a driving means of a noninverting conveyance way, and a driving means of a reversal conveyance way as said conveyance means for stopping in a paper leaf table reverse side turnover device according to claim 1, and is characterized by said control means suspending actuation of a conveyance way of a direction where a jam was detected with said detection means.

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**DETAILED DESCRIPTION**

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[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention is carried in the bill close payment equipment of Consumer Transaction Facility etc., and relates to the paper leaf table reverse side turnover device which has in stock the front reverse side of paper leaf, such as a bill.

[0002]

[Description of the Prior Art] conventionally, it is indicated by the paper leaf table reverse side turnover device carried in the bill close payment equipment of Consumer Transaction Facility etc. at JP,63-12561,A -- as -- ostensible paper leaf -- a noninverting conveyance way -- as it is -- conveying -- the paper leaf of the reverse side sense -- a reversal conveyance way -- on the way -- there are some which officially boil, are made to reverse by making it come out and switchback, and are conveyed.

[0003]

[Problem(s) to be Solved by the Invention] In such a paper leaf table reverse side turnover device, when the jam of paper leaf was generated on either a noninverting conveyance way or a reversal conveyance way, operation of equipment was stopped, and after the customer engineer removed jam paper leaf, employment of equipment was resumed. For this reason, when were applied in a place for which a customer engineer does not require Consumer Transaction Facility with which the paper leaf table reverse side turnover device was carried and the jam of paper leaf is generated on either a noninverting conveyance way or a reversal conveyance way, there is a problem of whole Consumer Transaction Facility carrying out a machine down, and reinstatement taking time amount, and making a customer great trouble.

[0004]

1 [Means for Solving the Problem] A noninverting conveyance way conveyed as it is, without this  
2 invention carrying out front reverse side reversal of the paper leaf distinguished from public in the  
3 differentiation section which distinguishes the front reverse side of paper leaf in order to attain this  
4 object, A reversal conveyance way which public is reversed and conveys paper leaf distinguished from  
5 reverse side sense, A distribution means to distribute paper leaf to said noninverting conveyance way or  
6 a reversal conveyance way based on a distinction result in the differentiation section, In a paper leaf  
7 table reverse side turnover device equipped with a unification conveyance way which paper leaf which  
8 passed through said noninverting conveyance way and a reversal conveyance way is made to join, and  
9 conveys it A detection means to detect a jam of paper leaf in said noninverting conveyance way, and a  
10 detection means to detect a jam of paper leaf in said reversal conveyance way, It is controlled by a  
11 control means which controls said distribution means, and said control means not to send paper leaf into  
12 a conveyance way of a direction where a jam was detected with said detection means, and has a  
13 conveyance means for stopping which stops conveyance of paper leaf in a conveyance way of a  
14 direction where a jam was detected with said detection means.

[0005]

1 [Function] The paper-leaf with which this invention which has the configuration mentioned above was  
2 distinguished from public in the differentiation section is conveyed as it is in a noninverting conveyance  
3 way, front reverse side reversal is carried out and the paper leaf distinguished from the reverse side  
4 sense is conveyed on a reversal conveyance way. And the paper leaf which has a reversal conveyance  
5 way and a noninverting conveyance way conveyed joins, and is conveyed on a unification conveyance

6 way. If the jam of paper leaf is detected on a noninverting conveyance way or a reversal conveyance  
7 way, at this time, as conveyance of the paper leaf in the conveyance way of the direction where the jam  
8 was detected is stopped and paper leaf is not sent into the conveyance way where this jam was detected,  
9 conveyance on another conveyance way will be continued.

[0006]

[Example] Drawing 1 is an outline side elevation showing the 1st example of the paper leaf table reverse side turnover device of this invention. In drawing, 1 is a paper leaf table reverse side turnover device, and this paper leaf table reverse side turnover device 1 consists of a configuration shown below. 2 is the differentiation section and this differentiation section 2 has conveyance belt 2a, and 2b and distinction machine 2c. Conveyance belt 2a is endless [-like ], and is hung on Pulleys 2d and 2e. Moreover, conveyance belt 2b is endless [-like ], and it is applied to Pulleys 2f and 2g so that it may counter with said conveyance belt 2a. Distinction machine 2c is arranged in the middle of the conveyance path of the paper leaf 21 by said conveyance belt 2a and 2b, and distinguishes the front reverse side of the paper leaf 21 which is inserted into conveyance belt 2a and conveyance belt 2b, and is conveyed.

[0007] 3 is the noninverting conveyance way where the paper leaf (noninverting paper leaf 22 is called hereafter) distinguished when the table was turned to in said differentiation section 2 is conveyed, and this noninverting conveyance way 3 has the conveyance belts 3a and 3b. Conveyance belt 3a is endless [-like ], and is hung on Pulleys 3c-3h. Moreover, by the shape of endless, conveyance belt 3b is also hung on Pulleys 3i-3k so that it may counter with said conveyance belt 3a.

[0008] 4 is the reversal conveyance way where the paper leaf (reversal paper leaf 23 is called hereafter) distinguished when the reverse side was turned to in said differentiation section 2 is conveyed, and this reversal conveyance way 4 has the conveyance belts 4a, 4b, and 4c, the reversal pool section 6, and a guide roller 7. Conveyance belt 4a is endless [-like ], and is hung on Pulleys 4d and 4e. Moreover, conveyance belt 4b is also endless [-like ], and is hung on Pulleys 4f and 4g. Furthermore, conveyance belt 4c is also endless [-like ], and is hung on Pulleys 4h-4k.

[0009] Carrying-in guide frame 6a which guides the reversal paper leaf 23 with which the reversal pool section 6 is carried in by conveyance belt 4a and conveyance belt 4b, Taking-out guide frame 6b which guides the reversal paper leaf 23 taken out by conveyance belt 4b and conveyance belt 4c, It has stopper 6c which makes the reversal paper leaf 23 which made conveyance of the reversal paper leaf 23 conveyed by conveyance belt 4a and conveyance belt 4b along with carrying-in guide frame 6a meet stop and taking-out guide frame 6b convey by conveyance belt 4b and conveyance belt 4c. In addition, the distance from 6d of carrying-in sections and taking-out section 6e to stopper 6c is somewhat set up shorter from the length of reversal paper leaf 23.

[0010] A guide roller 7 is formed in said pulley 4f and same axle, and two or more tongue-shaped piece 7a which consists of a flexible member with the length which projects from the field of conveyance belt 4b wound around pulley 4f is prepared from the periphery. A blade 5 is formed in the branch point 13 of the noninverting conveyance way 3 and the reversal conveyance way 4, and is pivotable in the direction of arrow head C-C' focusing on supporting-point 5a. This blade 5 sends reversal paper leaf 23 into the reversal conveyance way 4 by rotating noninverting paper leaf 22 in delivery and the direction of arrow head C' on the noninverting conveyance way 3 by rotating in the direction of arrow head C based on the distinction signal from distinction machine 2c.

[0011] 9 is the unification conveyance way where it comes to carry out opposite arrangement of a part of conveyance belt 3a which constitutes the noninverting conveyance way 3, and a part of conveyance belt 4c which constitutes the reversal conveyance way 4. The noninverting paper leaf 22 which has had the noninverting conveyance way 3 conveyed, and the reversal paper leaf 23 which has had the reversal conveyance way 4 conveyed are conveyed along with unification guide frame 9a, and joins by being put between conveyance belt 3a and conveyance belt 4c.

[0012] It is the sensor by which 24 is prepared near the entrance of the noninverting conveyance way 3, and the sensor by which 25 is prepared near the outlet of the noninverting conveyance way 3, and detects whether the noninverting paper leaf 22 sent into the noninverting conveyance way 3 by these sensors 24 and 25 is carrying out the jam in this noninverting conveyance way 3. It is the sensor by which 26 is prepared near the entrance of the reversal conveyance way 4, the sensor by which 27 is prepared in the reversal pool section 6, and the sensor by which 28 is prepared near the outlet of the reversal conveyance way 4, and detects [ whether the reversal paper leaf 23 sent into the reversal conveyance way 4 by the \*\* sensors 26-28 is carrying out the jam within this reversal conveyance way 4

or the reversal pool section 6, and ]. In addition, the sensors 24-28 mentioned above are sensors which consist of luminescence and a photo detector.

[0013] In order that 30 may take up the outlet of the reversal conveyance way 3 or the noninverting conveyance way 4, it is the shutter formed in the unification section 12, and this shutter 30 takes up the reversal conveyance way 4, when it rotates in the x directions focusing on supporting-point 30a, and when it rotates in the direction of y, it takes up the noninverting conveyance way 3. Drawing 2 is control-block drawing of the paper leaf table reverse side turnover device of the 1st example. The shutter actuator where 31 drives said shutter 30, and 32 are blade actuators which drive said blade 5.

[0014] 33 is a conveyance way actuator which drives the pulley with which the conveyance belt which constitutes a conveyance way was hung. 35 is a control section and the shutter actuator 31 which mentioned above, the blade actuator 32, and the conveyance way actuator 33 are connected to this control section 35. Moreover, the differentiation section 2 and sensors 24-28 are also connected to the control section 35, and the shutter actuator 31, the blade actuator 32, and the conveyance way drive motor 33 are controlled based on the output of the differentiation section 2 and sensors 24-28.

[0015] Below, actuation of the paper leaf table reverse side turnover device of the 1st example is explained. First, the paper leaf 21 conveyed by the differentiation section 2 has it officially distinguished by distinction machine 2c whether they are or the reverse side sense, being inserted into conveyance belt 2a and conveyance belt 2b, and being conveyed. If it is distinguished that the paper leaf sent by distinction machine 2c is the reverse side sense, a control section 35 will control the blade actuator 32, will rotate a blade 5 in the direction of arrow head C', and will switch the conveyance path of paper leaf in the reversal conveyance way 4 direction.

[0016] Thereby, the paper leaf which is inserted into conveyance belt 2a and 2b, and is conveyed is sent into the reversal conveyance way 4. Reversal paper leaf 23 is first sent in between conveyance belt 3a and 4a from between conveyance belt 2a and 2b. Since the blade 5 is rotating in the direction of arrow head C' as mentioned above, reversal paper leaf 23 rides on a blade 5, is conveyed, and is guided at the reversal pool section 6. The reversal paper leaf 23 guided at the reversal pool section 6 is inserted between conveyance belt 4a and 4b, and is conveyed along with carrying-in guide frame 6a. At this time, the portion which projects in the conveyance belt 4a side which has countered among the portions which project from conveyance belt 4b of tongue-shaped piece 7a prepared in the guide roller 7 will be in the condition of it having been pushed with the reversal paper leaf 23 put between conveyance belt 4a and 4b, and having bent.

[0017] If reversal paper leaf 23 is conveyed along with carrying-in guide frame 6a with the conveyance belts 4a and 4b, the head of this reversal paper leaf 23 will run against stopper 6c. At this time, the back end of reversal paper leaf 23 is still pinched between conveyance belt 4a and 4b, and reversal paper leaf 23 is \*\*\*\*\*ed by being conveyed further. And if the back end of reversal paper leaf 23 escapes from between conveyance belt 4a and 4b, the back end of this reversal paper leaf 23 will enter among tongue-shaped piece 7a of a guide roller 7. The guide roller 7 is rotating in the direction of arrow head A with pulley 4f, and it is shown to reversal paper leaf 23 to that back end side to it with a deflection by the revolution of this guide roller 7 at the taking-out guide frame 6b side. If the back end side of reversal paper leaf 23 is guided at the taking-out guide frame 6b side, the back end of this reversal paper leaf 23 will be put among the conveyance belts 4b and 4c.

[0018] Thereby, reversal paper leaf 23 will be conveyed from a back end side with the conveyance belts 4b and 4c, the reversal paper leaf 23 of the reverse side sense is reversed now by public, and reversal \*\*\*\* reversal paper leaf 23 is conveyed by public with the conveyance belts 4b and 4c on the unification conveyance way 9. if it is distinguished that the paper leaf sent by distinction machine 2c officially comes out on the other hand, a control section 35 will control the blade actuator 32, will rotate a blade 5 in the direction of arrow head C, and will switch the conveyance path of paper leaf in the noninverting conveyance way 3 direction.

[0019] Thereby, the paper leaf which is inserted into conveyance belt 2a and 2b, and is conveyed is sent into the noninverting conveyance way 4. Noninverting paper leaf 22 is first sent in between conveyance belt 3a and 4a from between conveyance belt 2a and 2b. Since the blade 5 is rotating in the direction of arrow head C as mentioned above, noninverting paper leaf 22 is changed so that the conveyance path may meet pulley 3d with a blade 5, and is put between conveyance belt 3a and 3b. And it is conveyed as it is with the conveyance belts 3a and 3b on the unification conveyance way 9, without reversing the front reverse side.

[0020] Next, detection actuation of a jam and the switching action of a shutter 30 are explained. First, detection actuation of the jam in the noninverting conveyance 3 and the switching action of a shutter 30 are explained. When noninverting paper leaf 22 is sent into the noninverting conveyance way 3, if noninverting paper leaf 22 passes a sensor 24, a sensor 24 will be turned on and the signal will be sent to a control section 35. At this time, time amount after a sensor 24 turns on with the timer which is not illustrated until a sensor 25 turns on is measured by the control section 35. And fixed time amount beforehand determined as this measured time amount is compared, and even if it goes through this fixed time amount, it is judged that a sensor 25 continues being an OFF state and that the jam generated the control section 35 in the noninverting conveyance way 3.

[0021] If a control section 35 judges that the jam was generated in the noninverting conveyance way 3, it will control the shutter actuator 31, will rotate a shutter 30 in the direction of arrow head y, and will take up the outlet of the noninverting conveyance way 3. Furthermore, after checking OFF of a sensor 24, the blade actuator 32 is driven, a blade 5 is rotated in the direction of arrow head C', and the conveyance place of paper leaf is made into reversal conveyance way 4 direction. All the paper leaf that follows has the reversal conveyance way 4 conveyed by this.

[0022] Next, detection actuation of the jam in the reversal conveyance 4 and the switching action of a shutter 30 are explained. When reversal paper leaf 23 is sent into the reversal conveyance way 4, if reversal paper leaf 23 passes a sensor 26, a sensor 26 will be turned on and the signal will be sent to a control section 35. At this time, time amount after a sensor 26 turns on with the timer which is not illustrated until a sensor 28 turns on is measured by the control section 35. And fixed time amount beforehand determined as this measured time amount is compared, and even if it goes through this fixed time amount, it is judged that a sensor 28 continues being an OFF state and that the jam generated the control section 35 in the reversal conveyance way 4.

[0023] If a control section 35 judges that the jam was generated in the reversal conveyance way 4, it will control the shutter actuator 31, will rotate a shutter 30 in the arrow head x direction, and will take up the outlet of the reversal conveyance way 4. Furthermore, after checking OFF of a sensor 26, the blade actuator 32 is driven, a blade 5 is rotated in the direction of arrow head C, and the conveyance place of paper leaf is made into noninverting conveyance way 3 direction. All the paper leaf that follows has the noninverting conveyance way 3 conveyed by this.

[0024] Since a shutter 30 closes the outlet of the conveyance way of the direction which the jam generated when a jam is generated in the noninverting conveyance way 3 or the reversal conveyance way 4 as mentioned above, this paper leaf does not come out ahead of the unification section 12, and he is trying not to be intermingled in jam paper leaf, even if jam paper leaf begins to be again conveyed during continuation of employment. Since the shutter which takes up the outlet of a noninverting conveyance way or the outlet of a reversal conveyance way was formed according to the 1st example as explained above Even if a jam is generated on either a noninverting conveyance way or a reversal conveyance way, conveyance of the paper leaf in the conveyance way of the direction where this jam generated the outlet of the conveyance way of the direction which the jam generated by closing with a shutter is stopped, and it becomes possible to apply only using the conveyance way of the way which the jam has not generated. When it carries a paper leaf table reverse side turnover device which was mentioned above by this in order to have the front reverse side of a bill in stock in Consumer Transaction Facility, even if a jam is generated with a paper leaf table reverse side turnover device, it becomes possible to continue employment of Consumer Transaction Facility, and it is lost that the jam in a paper leaf table reverse side turnover device stops operation of Consumer Transaction Facility owing to, and it can gather the operating ratio of Consumer Transaction Facility.

[0025] Drawing 3 is an outline side elevation showing the 2nd example of the paper leaf table reverse side turnover device of this invention. In drawing, 1 is a paper leaf table reverse side turnover device, and this paper leaf table reverse side turnover device 1 consists of a configuration shown below. 2 is the differentiation section and this differentiation section 2 has conveyance belt 2a, and 2b and distinction machine 2c. Conveyance belt 2a is endless [-like ], and is hung on Pulleys 2d and 2e. Moreover, conveyance belt 2b is endless [-like ], and it is applied to Pulleys 2f and 2g so that it may counter with said conveyance belt 2a. Distinction machine 2c is arranged in the middle of the conveyance path of the paper leaf 21 by said conveyance belt 2a and 2b, and distinguishes the front reverse side of the paper leaf 21 which is inserted into conveyance belt 2a and conveyance belt 2b, and is conveyed.

[0026] 2h and 2i are the conveyance belts which convey the paper leaf 21 which passed the

differentiation section 2, it is hung on pulley 2j and pulley 2k conveyance belt 2h, and conveyance belt 2i is hung on pulley 2l. and pulley 2m. 3 is the noninverting conveyance way where noninverting paper leaf 22 is conveyed, and this noninverting conveyance way 3 has the conveyance belts 3a and 3b. Conveyance belt 3a is endless [-like ], and is hung on Pulleys 3c-3f. Moreover, by the shape of endless, conveyance belt 3b is also hung on Pulleys 3g-3h so that it may counter with said conveyance belt 3a. [0027] 4 is the reversal conveyance way where reversal paper leaf 23 is conveyed, and this reversal conveyance way 4 has the conveyance belts 4a, 4b, and 4c, the reversal pool section 6, and a guide roller 7. Conveyance belt 4a is endless [-like ], and is hung on Pulleys 4d and 4e. Moreover, conveyance belt 4b is also endless [-like ], and is hung on Pulleys 4f and 4g. Furthermore, conveyance belt 4c is also endless [-like ], and is hung on Pulleys 4h-4j.

[0028] Carrying-in guide frame 6a which guides the reversal paper leaf 23 with which the reversal pool section 6 is carried in by conveyance belt 4a and conveyance belt 4b, Taking-out guide frame 6b which guides the reversal paper leaf 23 taken out by conveyance belt 4b and conveyance belt 4c, It has stopper 6c which makes the reversal paper leaf 23 which made conveyance of the reversal paper leaf 23 conveyed by conveyance belt 4a and conveyance belt 4b along with carrying-in guide frame 6a meet stop and taking-out guide frame 6b convey by conveyance belt 4b and conveyance belt 4c.

[0029] A guide roller 7 is formed in said pulley 4f and same axle, and two or more tongue-shaped piece 7a which consists of a flexible member with the length which projects from the field of conveyance belt 4b wound around pulley 4f is prepared from the periphery. A blade 5 is formed in the branch point of the noninverting conveyance way 3 and the reversal conveyance way 4, and is pivotable in the direction of arrow head C-C' focusing on supporting-point 5a. This blade 5 sends reversal paper leaf 23 into the reversal conveyance way 4 by rotating noninverting paper leaf 22 in delivery and the direction of arrow head C' on the noninverting conveyance way 3 by rotating in the direction of arrow head C based on the distinction signal from distinction machine 2c.

[0030] 9 is a unification conveyance way and this unification conveyance way 9 has the conveyance belts 9a and 9b. Conveyance belt 9a is endless [-like ], and is hung on Pulleys 9c and 9d. Moreover, by the shape of endless, conveyance belt 9b is also hung on Pulleys 9e and 9f so that it may counter with said conveyance belt 9a. Thereby, the noninverting paper leaf 22 which has had the noninverting conveyance way 3 conveyed, and the reversal paper leaf 23 which has had the reversal conveyance way 4 conveyed are conveyed along with a guide, and joins by being put between conveyance belt 9a and conveyance belt 9b.

[0031] It is the sensor by which 24 is prepared near the entrance of the noninverting conveyance way 3, and the sensor by which 25 is prepared near the outlet of the noninverting conveyance way 3, and detects whether the noninverting paper leaf 22 sent into the noninverting conveyance way 3 by these sensors 24 and 25 is carrying out the jam in this noninverting conveyance way 3. It is the sensor by which 26 is prepared near the entrance of the reversal conveyance way 4, the sensor by which 27 is prepared in the reversal pool section 6, and the sensor by which 28 is prepared near the outlet of the reversal conveyance way 4, and detects [ whether the reversal paper leaf 23 sent into the reversal conveyance way 4 by the \*\* sensors 26-28 is carrying out the jam within this reversal conveyance way 4 or the reversal pool section 6, and ]. In addition, the sensors 24-28 mentioned above are sensors which consist of luminescence and a photo detector.

[0032] 36 is the main conveyance way actuator, and since this main conveyance way actuator 36 consists of motors etc. and drives conveyance belt 2a, 2b, the conveyance belts 2h and 2i, and the unification conveyance way 9, it transmits driving force to pulley 2d and pulley 2k and pulley 9d. 37 is a noninverting conveyance way actuator, and since this noninverting conveyance way actuator 37 consists of motors etc. and drives the noninverting conveyance way 3, it transmits driving force to pulley 3c.

[0033] 38 is a reversal conveyance way actuator, and since this reversal conveyance way actuator 38 consists of motors etc. and drives the reversal conveyance way 4, it transmits driving force to pulley 4f. 39 is a control section which controls each above-mentioned actuator etc. Drawing 4 is control-block drawing of the paper leaf table reverse side turnover device of the 2nd example. 32 is a blade actuator which drives said blade 5.

[0034] The blade actuator 32 which mentioned above, the main conveyance way actuator 36, the noninverting conveyance way actuator 37, the reversal conveyance way actuator 38, the differentiation section 2, and sensors 24-28 are connected to said control section 39, and the blade actuator 32, the main conveyance way actuator 36, the noninverting conveyance way actuator 37, and the reversal conveyance



way 38 are controlled based on the output of the differentiation section 2 and sensors 24-28.

[0035] Below, actuation of the paper leaf table reverse side turnover device of the 2nd example is explained. First, a control section 39 controls the main conveyance way actuator 36, the noninverting conveyance way actuator 37, and the reversal conveyance way 38, and starts actuation of each conveyance way. The paper leaf 21 conveyed by the differentiation section 2 has it officially distinguished by distinction machine 2c whether they are or the reverse side sense.

[0036] If it is distinguished that the sent paper leaf is the reverse side sense, a control section 39 will control the blade actuator 32, will rotate a blade 5 in the direction of arrow head C', and will switch the conveyance path of paper leaf in the reversal conveyance way 4 direction. Thereby, reversal paper leaf 23 is sent into the reversal pool section 6 by the reversal conveyance way 4, it switchbacks in this reversal pool section 6 by the guide roller 7, has the previous reversal conveyance way 4 conveyed further, and is sent into the unification conveyance way 9.

[0037] if it is distinguished that the sent paper leaf officially comes out on the other hand, a control section 39 will control the blade actuator 32, will rotate a blade 5 in the direction of arrow head C, and will switch the conveyance path of paper leaf in the noninverting conveyance way 3 direction. Thereby, noninverting paper leaf 22 has the noninverting conveyance way 3 conveyed, and is sent into the unification conveyance way 9.

[0038] Next, detection actuation of a jam and control of a conveyance way actuator are explained. First, detection actuation of the jam in the noninverting conveyance 3 and control of a conveyance way actuator are explained. When noninverting paper leaf 22 is sent into the noninverting conveyance way 3, if noninverting paper leaf 22 passes a sensor 24, a sensor 24 will be turned on and the signal will be sent to a control section 39. At this time, time amount after a sensor 24 turns on with the timer which is not illustrated until a sensor 25 turns on is measured by the control section 39. And fixed time amount beforehand determined as this measured time amount is compared, and even if it goes through this fixed time amount, it is judged that a sensor 25 continues being an OFF state and that the jam generated the control section 39 in the noninverting conveyance way 3.

[0039] If a control section 39 judges that the jam was generated in the noninverting conveyance way 3, it will control the noninverting conveyance way actuator 37, and will suspend actuation of the noninverting conveyance way 3. Furthermore, after checking OFF of a sensor 24, the blade actuator 32 is driven, a blade 5 is rotated in the direction of arrow head C', and the conveyance place of paper leaf is made into reversal conveyance way 4 direction. All the paper leaf that follows has the reversal conveyance way 4 conveyed by this.

[0040] Next, detection actuation of the jam in the reversal conveyance 4 and control of a conveyance way actuator are explained. When reversal paper leaf 23 is sent into the reversal conveyance way 4, if reversal paper leaf 23 passes a sensor 26, a sensor 26 will be turned on and the signal will be sent to a control section 39. At this time, time amount after a sensor 26 turns on with the timer which is not illustrated until a sensor 28 turns on is measured by the control section 39. And fixed time amount beforehand determined as this measured time amount is compared, and even if it goes through this fixed time amount, it is judged that a sensor 28 continues being an OFF state and that the jam generated the control section 39 in the reversal conveyance way 4.

[0041] If a control section 39 judges that the jam was generated in the reversal conveyance way 4, it will control the reversal conveyance way actuator 38, and will suspend actuation of the reversal conveyance way 4. Furthermore, after checking OFF of a sensor 26, the blade actuator 32 is driven, a blade 5 is rotated in the direction of arrow head C, and the conveyance place of paper leaf is made into noninverting conveyance way 3 direction. All the paper leaf that follows has the noninverting conveyance way 3 conveyed by this.

[0042] Since actuation of the conveyance way of the direction which the jam generated is suspended when a jam is generated in the noninverting conveyance way 3 or the reversal conveyance way 4 as mentioned above, jam paper leaf is not conveyed during continuation of employment. As explained above, since [ according to the 2nd example ] a noninverting conveyance way and a reversal conveyance way are driven independently Even if a jam is generated on either a noninverting conveyance way or a reversal conveyance way, conveyance of the paper leaf in the conveyance way of the direction which this jam generated by suspending actuation of the conveyance way of the direction which the jam generated is stopped, and it becomes possible to apply only using the conveyance way of the way which the jam has not generated. When it carries a paper leaf table reverse side turnover device which was

mentioned above by this in order to have the front reverse side of a bill in stock in Consumer Transaction Facility, even if a jam is generated with a paper leaf table reverse side turnover device, it becomes possible to continue employment of Consumer Transaction Facility, and it is lost that the jam in a paper leaf table reverse side turnover device stops operation of Consumer Transaction Facility owing to, and it can gather the operating ratio of Consumer Transaction Facility.

[0043] Moreover, since actuation of the conveyance way of the direction which the jam generated is suspended according to the 2nd example, it can prevent that a still more serious jam is generated by jam paper leaf not being conveyed and jam paper leaf being conveyed.

[0044]

[Effect of the Invention] As explained above, when the jam was generated on either the noninverting conveyance way or the reversal conveyance way, since [ this invention / conveyance of the paper leaf in the conveyance way of the direction which detected the jam ] conveyance of paper leaf is continued only using a stop and another conveyance way, even if a jam is generated, it can continue employment of equipment, and can gather an operating ratio.

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[Translation done.]

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**TECHNICAL FIELD**

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[Industrial Application] This invention is carried in the bill close payment equipment of Consumer Transaction Facility etc., and relates to the paper leaf table reverse side turnover device which has in stock the front reverse side of paper leaf, such as a bill.

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**PRIOR ART**

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[Description of the Prior Art] conventionally, it is indicated by the paper leaf table reverse side turnover device carried in the bill close payment equipment of Consumer Transaction Facility etc. at JP,63-12561,A -- as -- ostensible paper leaf -- a noninverting conveyance way -- as it is -- conveying -- the paper leaf of the reverse side sense -- a reversal conveyance way -- on the way -- there are some which officially boil, are made to reverse by making it come out and switchback, and are conveyed.

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**EFFECT OF THE INVENTION**

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[Effect of the Invention] As explained above, when the jam was generated on either the noninverting conveyance way or the reversal conveyance way, since [ this invention / conveyance of the paper leaf in the conveyance way of the direction which detected the jam ] conveyance of paper leaf is continued only using a stop and another conveyance way, even if a jam is generated, it can continue employment of equipment, and can gather an operating ratio.

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**TECHNICAL PROBLEM**

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[Problem(s) to be Solved by the Invention] In such a paper leaf table reverse side turnover device, when the jam of paper leaf was generated on either a noninverting conveyance way or a reversal conveyance way, operation of equipment was stopped, and after the customer engineer removed jam paper leaf, employment of equipment was resumed. For this reason, when were applied in a place for which a customer engineer does not require Consumer Transaction Facility with which the paper leaf table reverse side turnover device was carried and the jam of paper leaf is generated on either a noninverting conveyance way or a reversal conveyance way, there is a problem of whole Consumer Transaction Facility carrying out a machine down, and reinstatement taking time amount, and making a customer great trouble.

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**MEANS**

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[Means for Solving the Problem] A noninverting conveyance way conveyed as it is, without this invention carrying out front reverse side reversal of the paper leaf distinguished from public in the differentiation section which distinguishes the front reverse side of paper leaf in order to attain this object, A reversal conveyance way which public is reversed and conveys paper leaf distinguished from reverse side sense, Based on a distinction result in the differentiation section, a paper leaf table reverse side turnover device equipped with a distribution means to distribute paper leaf to said noninverting conveyance way or a reversal conveyance way, and a unification conveyance way which paper leaf which passed through said noninverting conveyance way and a reversal conveyance way is made to join, and conveys it is characterized by providing the following. A detection means to detect a jam of paper leaf in said noninverting conveyance way A detection means to detect a jam of paper leaf in said reversal conveyance way A control means which controls said distribution means not to send paper leaf into a conveyance way of a direction where a jam was detected with said detection means A conveyance means for stopping which stops conveyance of paper leaf in a conveyance way of a direction where it was controlled by said control means and a jam was detected with said detection means

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**OPERATION**

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[Function] The paper leaf with which this invention which has the configuration mentioned above was distinguished from public in the differentiation section is conveyed as it is in a noninverting conveyance way, front reverse side reversal is carried out and the paper leaf distinguished from the reverse side sense is conveyed on a reversal conveyance way. And the paper leaf which has a reversal conveyance way and a noninverting conveyance way conveyed joins, and is conveyed on a unification conveyance way. If the jam of paper leaf is detected on a noninverting conveyance way or a reversal conveyance way at this time, as conveyance of the paper leaf in the conveyance way of the direction where the jam was detected is stopped and paper leaf is not sent into the conveyance way where this jam was detected, conveyance on another conveyance way will be continued.

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**EXAMPLE**

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[Example] Drawing 1 is an outline side elevation showing the 1st example of the paper leaf table reverse side turnover device of this invention. In drawing, 1 is a paper leaf table reverse side turnover device, and this paper leaf table reverse side turnover device 1 consists of a configuration shown below. 2 is the differentiation section and this differentiation section 2 has conveyance belt 2a, and 2b and distinction machine 2c. Conveyance belt 2a is endless [-like ], and is hung on Pulleys 2d and 2e. Moreover, conveyance belt 2b is endless [-like ], and it is applied to Pulleys 2f and 2g so that it may counter with said conveyance belt 2a. Distinction machine 2c is arranged in the middle of the conveyance path of the paper leaf 21 by said conveyance belt 2a and 2b, and distinguishes the front reverse side of the paper leaf 21 which is inserted into conveyance belt 2a and conveyance belt 2b, and is conveyed.

[0007] 3 is the noninverting conveyance way where the paper leaf (noninverting paper leaf 22 is called hereafter) distinguished when the table was turned to in said differentiation section 2 is conveyed, and this noninverting conveyance way 3 has the conveyance belts 3a and 3b. Conveyance belt 3a is endless [-like ], and is hung on Pulleys 3c-3h. Moreover, by the shape of endless, conveyance belt 3b is also hung on Pulleys 3i-3k so that it may counter with said conveyance belt 3a.

[0008] 4 is the reversal conveyance way where the paper leaf (reversal paper leaf 23 is called hereafter) distinguished when the reverse side was turned to in said differentiation section 2 is conveyed, and this reversal conveyance way 4 has the conveyance belts 4a, 4b, and 4c, the reversal pool section 6, and a guide roller 7. Conveyance belt 4a is endless [-like ], and is hung on Pulleys 4d and 4e. Moreover, conveyance belt 4b is also endless [-like ], and is hung on Pulleys 4f and 4g. Furthermore, conveyance belt 4c is also endless [-like ], and is hung on Pulleys 4h-4k.

[0009] Carrying-in guide frame 6a which guides the reversal paper leaf 23 with which the reversal pool section 6 is carried in by conveyance belt 4a and conveyance belt 4b, Taking-out guide frame 6b which guides the reversal paper leaf 23 taken out by conveyance belt 4b and conveyance belt 4c, It has stopper 6c which makes the reversal paper leaf 23 which made conveyance of the reversal paper leaf 23 conveyed by conveyance belt 4a and conveyance belt 4b along with carrying-in guide frame 6a meet stop and taking-out guide frame 6b convey by conveyance belt 4b and conveyance belt 4c. In addition, the distance from 6d of carrying-in sections and taking-out section 6e to stopper 6c is somewhat set up shorter from the length of reversal paper leaf 23.

[0010] A guide roller 7 is formed in said pulley 4f and same axle, and two or more tongue-shaped piece 7a which consists of a flexible member with the length which projects from the field of conveyance belt 4b wound around pulley 4f is prepared from the periphery. A blade 5 is formed in the branch point 13 of the noninverting conveyance way 3 and the reversal conveyance way 4, and is pivotable in the direction of arrow head C-C' focusing on supporting-point 5a. This blade 5 sends reversal paper leaf 23 into the reversal conveyance way 4 by rotating noninverting paper leaf 22 in delivery and the direction of arrow head C' on the noninverting conveyance way 3 by rotating in the direction of arrow head C based on the distinction signal from distinction machine 2c.

[0011] 9 is the unification conveyance way where it comes to carry out opposite arrangement of a part of conveyance belt 3a which constitutes the noninverting conveyance way 3, and a part of conveyance belt 4c which constitutes the reversal conveyance way 4. The noninverting paper leaf 22 which has had the noninverting conveyance way 3 conveyed, and the reversal paper leaf 23 which has had the reversal conveyance way 4 conveyed are conveyed along with unification guide frame 9a, and joins by being put between conveyance belt 3a and conveyance belt 4c.

[0012] It is the sensor by which 24 is prepared near the entrance of the noninverting conveyance way 3, and the sensor by which 25 is prepared near the outlet of the noninverting conveyance way 3, and detects whether the noninverting paper leaf 22 sent into the noninverting conveyance way 3 by these sensors 24 and 25 is carrying out the jam in this noninverting conveyance way 3. It is the sensor by which 26 is prepared near the entrance of the reversal conveyance way 4, the sensor by which 27 is prepared in the reversal pool section 6, and the sensor by which 28 is prepared near the outlet of the reversal conveyance way 4, and detects [ whether the reversal paper leaf 23 sent into the reversal conveyance way 4 by the \*\* sensors 26-28 is carrying out the jam within this reversal conveyance way 4 or the reversal pool section 6, and ]. In addition, the sensors 24-28 mentioned above are sensors which consist of luminescence and a photo detector.

[0013] In order that 30 may take up the outlet of the reversal conveyance way 3 or the noninverting conveyance way 4, it is the shutter formed in the unification section 12, and this shutter 30 takes up the reversal conveyance way 4, when it rotates in the x directions focusing on supporting-point 30a, and when it rotates in the direction of y, it takes up the noninverting conveyance way 3. Drawing 2 is control-block drawing of the paper leaf table reverse side turnover device of the 1st example. The shutter actuator where 31 drives said shutter 30, and 32 are blade actuators which drive said blade 5.

[0014] 33 is a conveyance way actuator which drives the pulley with which the conveyance belt which constitutes a conveyance way was hung. 35 is a control section and the shutter actuator 31 which mentioned above, the blade actuator 32, and the conveyance way actuator 33 are connected to this control section 35. Moreover, the differentiation section 2 and sensors 24-28 are also connected to the control section 35, and the shutter actuator 31, the blade actuator 32, and the conveyance way drive motor 33 are controlled based on the output of the differentiation section 2 and sensors 24-28.

[0015] Below, actuation of the paper leaf table reverse side turnover device of the 1st example is explained. First, the paper leaf 21 conveyed by the differentiation section 2 has it officially distinguished by distinction machine 2c whether they are or the reverse side sense, being inserted into conveyance belt 2a and conveyance belt 2b, and being conveyed. If it is distinguished that the paper leaf sent by distinction machine 2c is the reverse side sense, a control section 35 will control the blade actuator 32, will rotate a blade 5 in the direction of arrow head C', and will switch the conveyance path of paper leaf in the reversal conveyance way 4 direction.

[0016] Thereby, the paper leaf which is inserted into conveyance belt 2a and 2b, and is conveyed is sent into the reversal conveyance way 4. Reversal paper leaf 23 is first sent in between conveyance belt 3a and 4a from between conveyance belt 2a and 2b. Since the blade 5 is rotating in the direction of arrow head C' as mentioned above, reversal paper leaf 23 rides on a blade 5, is conveyed, and is guided at the reversal pool section 6. The reversal paper leaf 23 guided at the reversal pool section 6 is inserted between conveyance belt 4a and 4b, and is conveyed along with carrying-in guide frame 6a. At this time, the portion which projects in the conveyance belt 4a side which has countered among the portions which project from conveyance belt 4b of tongue-shaped piece 7a prepared in the guide roller 7 will be in the condition of it having been pushed with the reversal paper leaf 23 put between conveyance belt 4a and 4b, and having bent.

[0017] If reversal paper leaf 23 is conveyed along with carrying-in guide frame 6a with the conveyance belts 4a and 4b, the head of this reversal paper leaf 23 will run against stopper 6c. At this time, the back end of reversal paper leaf 23 is still pinched between conveyance belt 4a and 4b, and reversal paper leaf 23 is \*\*\*\*\* (ed) by being conveyed further. And if the back end of reversal paper leaf 23 escapes from between conveyance belt 4a and 4b, the back end of this reversal paper leaf 23 will enter among tongue-shaped piece 7a of a guide roller 7. The guide roller 7 is rotating in the direction of arrow head A with pulley 4f, and it is shown to reversal paper leaf 23 to that back end side to it with a deflection by the revolution of this guide roller 7 at the taking-out guide frame 6b side. If the back end side of reversal paper leaf 23 is guided at the taking-out guide frame 6b side, the back end of this reversal paper leaf 23 will be put among the conveyance belts 4b and 4c.

[0018] Thereby, reversal paper leaf 23 will be conveyed from a back end side with the conveyance belts 4b and 4c, the reversal paper leaf 23 of the reverse side sense is reversed now by public, and reversal \*\*\*\* reversal paper leaf 23 is conveyed by public with the conveyance belts 4b and 4c on the unification conveyance way 9. if it is distinguished that the paper leaf sent by distinction machine 2c officially comes out on the other hand, a control section 35 will control the blade actuator 32, will rotate a blade 5 in the direction of arrow head C, and will switch the conveyance path of paper leaf in the noninverting

conveyance way 3 direction.

[0019] Thereby, the paper leaf which is inserted into conveyance belt 2a and 2b, and is conveyed is sent into the noninverting conveyance way 4. Noninverting paper leaf 22 is first sent in between conveyance belt 3a and 4a from between conveyance belt 2a and 2b. Since the blade 5 is rotating in the direction of arrow head C as mentioned above, noninverting paper leaf 22 is changed so that the conveyance path may meet pulley 3d with a blade 5, and is put between conveyance belt 3a and 3b. And it is conveyed as it is with the conveyance belts 3a and 3b on the unification conveyance way 9, without reversing the front reverse side.

[0020] Next, detection actuation of a jam and the switching action of a shutter 30 are explained. First, detection actuation of the jam in the noninverting conveyance 3 and the switching action of a shutter 30 are explained. When noninverting paper leaf 22 is sent into the noninverting conveyance way 3, if noninverting paper leaf 22 passes a sensor 24, a sensor 24 will be turned on and the signal will be sent to a control section 35. At this time, time amount after a sensor 24 turns on with the timer which is not illustrated until a sensor 25 turns on is measured by the control section 35. And fixed time amount beforehand determined as this measured time amount is compared, and even if it goes through this fixed time amount, it is judged that a sensor 25 continues being an OFF state and that the jam generated the control section 35 in the noninverting conveyance way 3.

[0021] If a control section 35 judges that the jam was generated in the noninverting conveyance way 3, it will control the shutter actuator 31, will rotate a shutter 30 in the direction of arrow head y, and will take up the outlet of the noninverting conveyance way 3. Furthermore, after checking OFF of a sensor 24, the blade actuator 32 is driven, a blade 5 is rotated in the direction of arrow head C', and the conveyance place of paper leaf is made into reversal conveyance way 4 direction. All the paper leaf that follows has the reversal conveyance way 4 conveyed by this.

[0022] Next, detection actuation of the jam in the reversal conveyance 4 and the switching action of a shutter 30 are explained. When reversal paper leaf 23 is sent into the reversal conveyance way 4, if reversal paper leaf 23 passes a sensor 26, a sensor 26 will be turned on and the signal will be sent to a control section 35. At this time, time amount after a sensor 26 turns on with the timer which is not illustrated until a sensor 28 turns on is measured by the control section 35. And fixed time amount beforehand determined as this measured time amount is compared, and even if it goes through this fixed time amount, it is judged that a sensor 28 continues being an OFF state and that the jam generated the control section 35 in the reversal conveyance way 4.

[0023] If a control section 35 judges that the jam was generated in the reversal conveyance way 4, it will control the shutter actuator 31, will rotate a shutter 30 in the arrow head x direction, and will take up the outlet of the reversal conveyance way 4. Furthermore, after checking OFF of a sensor 26, the blade actuator 32 is driven, a blade 5 is rotated in the direction of arrow head C, and the conveyance place of paper leaf is made into noninverting conveyance way 3 direction. All the paper leaf that follows has the noninverting conveyance way 3 conveyed by this.

[0024] Since a shutter 30 closes the outlet of the conveyance way of the direction which the jam generated when a jam is generated in the noninverting conveyance way 3 or the reversal conveyance way 4 as mentioned above, this paper leaf does not come out ahead of the unification section 12, and he is trying not to be intermingled in jam paper leaf, even if jam paper leaf begins to be again conveyed during continuation of employment. Since the shutter which takes up the outlet of a noninverting conveyance way or the outlet of a reversal conveyance way was formed according to the 1st example as explained above Even if a jam is generated on either a noninverting conveyance way or a reversal conveyance way, conveyance of the paper leaf in the conveyance way of the direction where this jam generated the outlet of the conveyance way of the direction which the jam generated by closing with a shutter is stopped, and it becomes possible to apply only using the conveyance way of the way which the jam has not generated. When it carries a paper leaf table reverse side turnover device which was mentioned above by this in order to have the front reverse side of a bill in stock in Consumer Transaction Facility, even if a jam is generated with a paper leaf table reverse side turnover device, it becomes possible to continue employment of Consumer Transaction Facility, and it is lost that the jam in a paper leaf table reverse side turnover device stops operation of Consumer Transaction Facility owing to, and it can gather the operating ratio of Consumer Transaction Facility.

[0025] Drawing 3 is an outline side elevation showing the 2nd example of the paper leaf table reverse side turnover device of this invention. In drawing, 1 is a paper leaf table reverse side turnover device,

and this paper leaf table reverse side turnover device 1 consists of a configuration shown below. 2 is the differentiation section and this differentiation section 2 has conveyance belt 2a, and 2b and distinction machine 2c. Conveyance belt 2a is endless [-like ], and is hung on Pulleys 2d and 2e. Moreover, conveyance belt 2b is endless [-like ], and it is applied to Pulleys 2f and 2g so that it may counter with said conveyance belt 2a. Distinction machine 2c is arranged in the middle of the conveyance path of the paper leaf 21 by said conveyance belt 2a and 2b, and distinguishes the front reverse side of the paper leaf 21 which is inserted into conveyance belt 2a and conveyance belt 2b, and is conveyed.

[0026] 2h and 2i are the conveyance belts which convey the paper leaf 21 which passed the differentiation section 2, it is hung on pulley 2j and pulley 2k conveyance belt 2h, and conveyance belt 2i is hung on pulley 2l. and pulley 2m. 3 is the noninverting conveyance way where noninverting paper leaf 22 is conveyed, and this noninverting conveyance way 3 has the conveyance belts 3a and 3b.

Conveyance belt 3a is endless [-like ], and is hung on Pulleys 3c-3f. Moreover, by the shape of endless, conveyance belt 3b is also hung on Pulleys 3g-3h so that it may counter with said conveyance belt 3a.

[0027] 4 is the reversal conveyance way where reversal paper leaf 23 is conveyed, and this reversal conveyance way 4 has the conveyance belts 4a, 4b, and 4c, the reversal pool section 6, and a guide roller 7. Conveyance belt 4a is endless [-like ], and is hung on Pulleys 4d and 4e. Moreover, conveyance belt 4b is also endless [-like ], and is hung on Pulleys 4f and 4g. Furthermore, conveyance belt 4c is also endless [-like ], and is hung on Pulleys 4h-4j.

[0028] Carrying-in guide frame 6a which guides the reversal paper leaf 23 with which the reversal pool section 6 is carried in by conveyance belt 4a and conveyance belt 4b, Taking-out guide frame 6b which guides the reversal paper leaf 23 taken out by conveyance belt 4b and conveyance belt 4c, It has stopper 6c which makes the reversal paper leaf 23 which made conveyance of the reversal paper leaf 23 conveyed by conveyance belt 4a and conveyance belt 4b along with carrying-in guide frame 6a meet stop and taking-out guide frame 6b convey by conveyance belt 4b and conveyance belt 4c.

[0029] A guide roller 7 is formed in said pulley 4f and same axle, and two or more tongue-shaped piece 7a which consists of a flexible member with the length which projects from the field of conveyance belt 4b wound around pulley 4f is prepared from the periphery. A blade 5 is formed in the branch point of the noninverting conveyance way 3 and the reversal conveyance way 4, and is pivotable in the direction of arrow head C-C' focusing on supporting-point 5a. This blade 5 sends reversal paper leaf 23 into the reversal conveyance way 4 by rotating noninverting paper leaf 22 in delivery and the direction of arrow head C' on the noninverting conveyance way 3 by rotating in the direction of arrow head C based on the distinction signal from distinction machine 2c.

[0030] 9 is a unification conveyance way and this unification conveyance way 9 has the conveyance belts 9a and 9b. Conveyance belt 9a is endless [-like ], and is hung on Pulleys 9c and 9d. Moreover, by the shape of endless, conveyance belt 9b is also hung on Pulleys 9e and 9f so that it may counter with said conveyance belt 9a. Thereby, the noninverting paper leaf 22 which has had the noninverting conveyance way 3 conveyed, and the reversal paper leaf 23 which has had the reversal conveyance way 4 conveyed are conveyed along with a guide, and joins by being put between conveyance belt 9a and conveyance belt 9b.

[0031] It is the sensor by which 24 is prepared near the entrance of the noninverting conveyance way 3, and the sensor by which 25 is prepared near the outlet of the noninverting conveyance way 3, and detects whether the noninverting paper leaf 22 sent into the noninverting conveyance way 3 by these sensors 24 and 25 is carrying out the jam in this noninverting conveyance way 3. It is the sensor by which 26 is prepared near the entrance of the reversal conveyance way 4, the sensor by which 27 is prepared in the reversal pool section 6, and the sensor by which 28 is prepared near the outlet of the reversal conveyance way 4, and detects [ whether the reversal paper leaf 23 sent into the reversal conveyance way 4 by the \*\* sensors 26-28 is carrying out the jam within this reversal conveyance way 4 or the reversal pool section 6, and ]. In addition, the sensors 24-28 mentioned above are sensors which consist of luminescence and a photo detector.

[0032] 36 is the main conveyance way actuator, and since this main conveyance way actuator 36 consists of motors etc. and drives conveyance belt 2a, 2b, the conveyance belts 2h and 2i, and the unification conveyance way 9, it transmits driving force to pulley 2d and pulley 2k and pulley 9d. 37 is a noninverting conveyance way actuator, and since this noninverting conveyance way actuator 37 consists of motors etc. and drives the noninverting conveyance way 3, it transmits driving force to pulley 3c.

[0033] 38 is a reversal conveyance way actuator, and since this reversal conveyance way actuator 38

consists of motors etc. and drives the reversal conveyance way 4, it transmits driving force to pulley 4f. 39 is a control section which controls each above-mentioned actuator etc. Drawing 4 is control-block drawing of the paper leaf table reverse side turnover device of the 2nd example. 32 is a blade actuator which drives said blade 5.

[0034] The blade actuator 32 which mentioned above, the main conveyance way actuator 36, the noninverting conveyance way actuator 37, the reversal conveyance way actuator 38, the differentiation section 2, and sensors 24-28 are connected to said control section 39, and the blade actuator 32, the main conveyance way actuator 36, the noninverting conveyance way actuator 37, and the reversal conveyance way 38 are controlled based on the output of the differentiation section 2 and sensors 24-28.

[0035] Below, actuation of the paper leaf table reverse side turnover device of the 2nd example is explained. First, a control section 39 controls the main conveyance way actuator 36, the noninverting conveyance way actuator 37, and the reversal conveyance way 38, and starts actuation of each conveyance way. The paper leaf 21 conveyed by the differentiation section 2 has it officially distinguished by distinction machine 2c whether they are or the reverse side sense.

[0036] If it is distinguished that the sent paper leaf is the reverse side sense, a control section 39 will control the blade actuator 32, will rotate a blade 5 in the direction of arrow head C', and will switch the conveyance path of paper leaf in the reversal conveyance way 4 direction. Thereby, reversal paper leaf 23 is sent into the reversal pool section 6 by the reversal conveyance way 4, it switchbacks in this reversal pool section 6 by the guide roller 7, has the previous reversal conveyance way 4 conveyed further, and is sent into the unification conveyance way 9.

[0037] if it is distinguished that the sent paper leaf officially comes out on the other hand, a control section 39 will control the blade actuator 32, will rotate a blade 5 in the direction of arrow head C, and will switch the conveyance path of paper leaf in the noninverting conveyance way 3 direction. Thereby, noninverting paper leaf 22 has the noninverting conveyance way 3 conveyed, and is sent into the unification conveyance way 9.

[0038] Next, detection actuation of a jam and control of a conveyance way actuator are explained. First, detection actuation of the jam in the noninverting conveyance 3 and control of a conveyance way actuator are explained. When noninverting paper leaf 22 is sent into the noninverting conveyance way 3, if noninverting paper leaf 22 passes a sensor 24, a sensor 24 will be turned on and the signal will be sent to a control section 39. At this time, time amount after a sensor 24 turns on with the timer which is not illustrated until a sensor 25 turns on is measured by the control section 39. And fixed time amount beforehand determined as this measured time amount is compared, and even if it goes through this fixed time amount, it is judged that a sensor 25 continues being an OFF state and that the jam generated the control section 39 in the noninverting conveyance way 3.

[0039] If a control section 39 judges that the jam was generated in the noninverting conveyance way 3, it will control the noninverting conveyance way actuator 37, and will suspend actuation of the noninverting conveyance way 3. Furthermore, after checking OFF of a sensor 24, the blade actuator 32 is driven, a blade 5 is rotated in the direction of arrow head C', and the conveyance place of paper leaf is made into reversal conveyance way 4 direction. All the paper leaf that follows has the reversal conveyance way 4 conveyed by this.

[0040] Next, detection actuation of the jam in the reversal conveyance 4 and control of a conveyance way actuator are explained. When reversal paper leaf 23 is sent into the reversal conveyance way 4, if reversal paper leaf 23 passes a sensor 26, a sensor 26 will be turned on and the signal will be sent to a control section 39. At this time, time amount after a sensor 26 turns on with the timer which is not illustrated until a sensor 28 turns on is measured by the control section 39. And fixed time amount beforehand determined as this measured time amount is compared, and even if it goes through this fixed time amount, it is judged that a sensor 28 continues being an OFF state and that the jam generated the control section 39 in the reversal conveyance way 4.

[0041] If a control section 39 judges that the jam was generated in the reversal conveyance way 4, it will control the reversal conveyance way actuator 38, and will suspend actuation of the reversal conveyance way 4. Furthermore, after checking OFF of a sensor 26, the blade actuator 32 is driven, a blade 5 is rotated in the direction of arrow head C, and the conveyance place of paper leaf is made into noninverting conveyance way 3 direction. All the paper leaf that follows has the noninverting conveyance way 3 conveyed by this.

[0042] Since actuation of the conveyance way of the direction which the jam generated is suspended

when a jam is generated in the noninverting conveyance way 3 or the reversal conveyance way 4 as mentioned above, jam paper leaf is not conveyed during continuation of employment. As explained above, since [ according to the 2nd example ] a noninverting conveyance way and a reversal conveyance way are driven independently Even if a jam is generated on either a noninverting conveyance way or a reversal conveyance way, conveyance of the paper leaf in the conveyance way of the direction which this jam generated by suspending actuation of the conveyance way of the direction which the jam generated is stopped, and it becomes possible to apply only using the conveyance way of the way which the jam has not generated. When it carries a paper leaf table reverse side turnover device which was mentioned above by this in order to have the front reverse side of a bill in stock in Consumer Transaction Facility, even if a jam is generated with a paper leaf table reverse side turnover device, it becomes possible to continue employment of Consumer Transaction Facility, and it is lost that the jam in a paper leaf table reverse side turnover device stops operation of Consumer Transaction Facility owing to, and it can gather the operating ratio of Consumer Transaction Facility.

[0043] Moreover, since actuation of the conveyance way of the direction which the jam generated is suspended according to the 2nd example, it can prevent that a still more serious jam is generated by jam paper leaf not being conveyed and jam paper leaf being conveyed.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] The outline side elevation showing the 1st example of the paper leaf table reverse side turnover device of this invention

[Drawing 2] Control-block drawing of the paper leaf table reverse side turnover device of the 1st example

[Drawing 3] The outline side elevation showing the 2nd example of the paper leaf table reverse side turnover device of this invention

[Drawing 4] Control-block drawing of the paper leaf table reverse side turnover device of the 2nd example

[Description of Notations]

3 Noninverting Conveyance Way

4 Reversal Conveyance Way

5 Blade

24-28 Sensor

30 Stopper

35 Control Section

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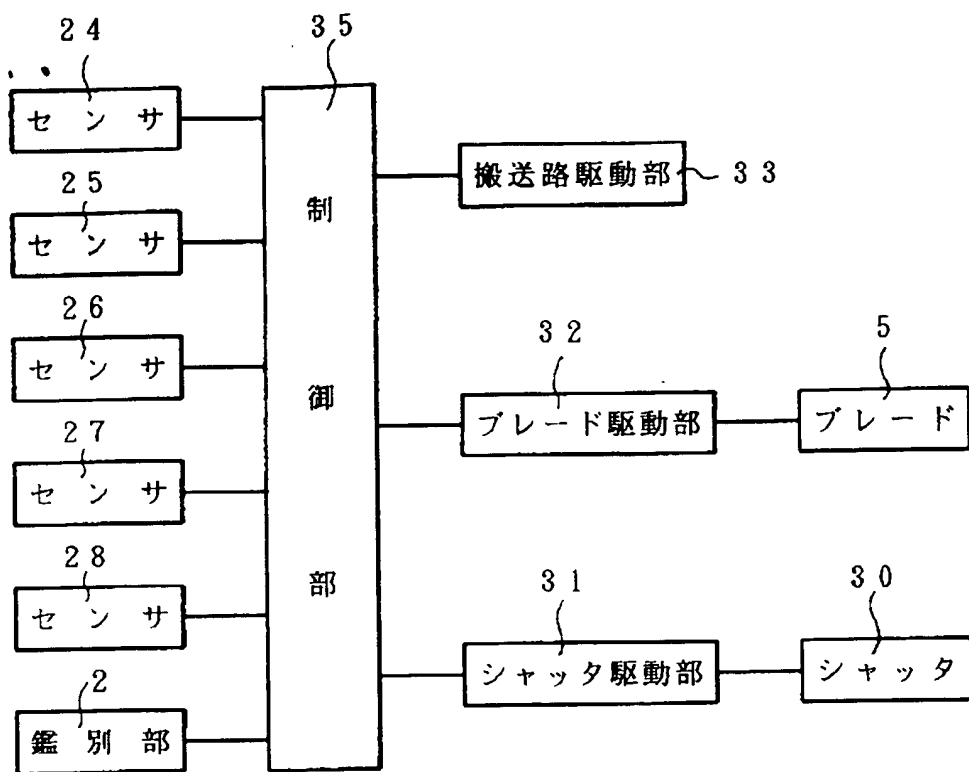
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[Drawing 1]



[Drawing 2]

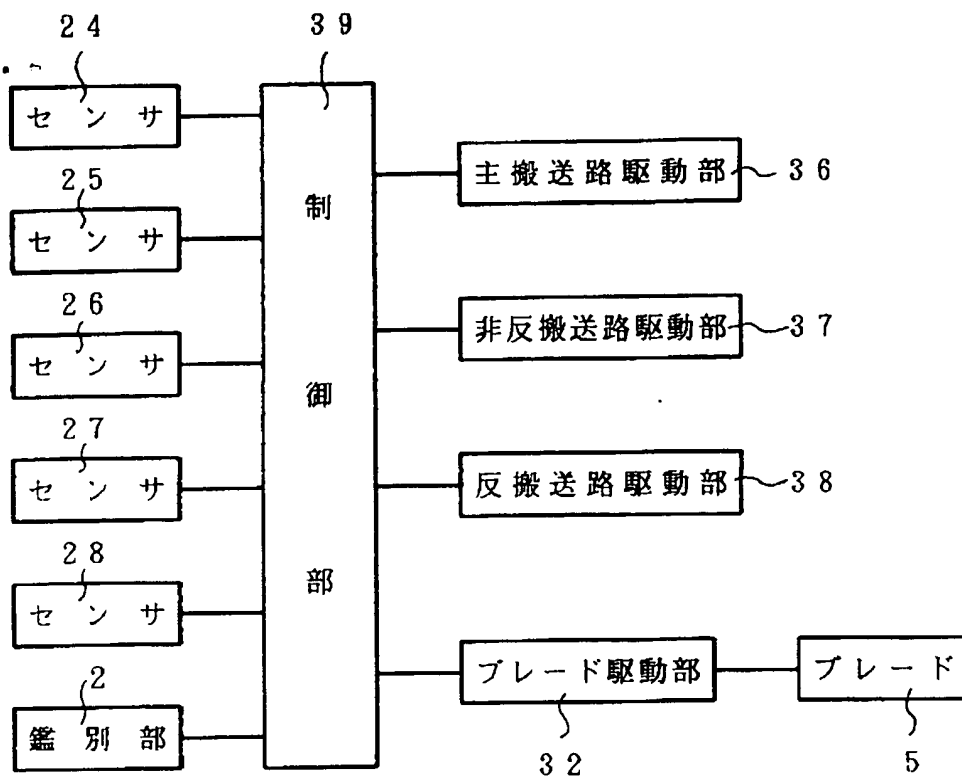




第 1 の実施例の制御ブロック図

[Drawing 3]





第 2 の実施例の制御ブロック図

[Translation done.]

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